

atccggctcg agttcacctg gtgctgctt gacttcaggc tcttccttct gcccagctcc gtcccccca gcagcccga gagaaaggag gcagctggca ccacactgg ctggagac actgcggga ctgtggaccc caccctgctg cacggagctc ctgcaaaagc aaacctgaga accttgggtc ctcccagcgc ccagcc atg ggg gaa ctg tgc cgc agg gac tcc	60 120 180 233
Met Gly Leu Cys Arg Arg Asp Ser	
1 5	
gca ctc acg gca ctg gac gag gag aca ctg tgg gag atg atg gag agc Ala Leu Thr Ala Leu Asp Glu Glu Thr Leu Trp Glu Met Met Glu Ser	281
10 15 20 25	
cac cgc cac agg atc gta cgc tgc atc tgc ccc agc cgc ctc acc ccc His Arg His Arg Ile Val Arg Cys Ile Cys Pro Ser Arg Leu Thr Pro	329
30 35 40	
tac ctg cgc cag gcc aag gtg ctg tgc cag ctg gac gag gag gag gtg Tyr Leu Arg Gln Ala Lys Val Leu Cys Gln Leu Asp Glu Glu Glu Val	377
45 50 55	
ctg cac agc ccc cgg ctc acc aac agc gcc atg cgg gcc ggg cac ttg Leu His Ser Pro Arg Leu Thr Asn Ser Ala Met Arg Ala Gly His Leu	425
60 65 70	
ctg gat ttg ctg aag act cga ggg aag aac ggg gcc atc gcc ttc ctg Leu Asp Leu Lys Thr Arg Gly Lys Asn Gly Ala Ile Ala Phe Leu	473
75 80 85	
gag agc ctg aag ttc cac aac cct gac gtc tac acc ctg gtc acc ggg Glu Ser Leu Lys Phe His Asn Pro Asp Val Tyr Thr Leu Val Thr Gly	521
90 95 100 105	
ctg cag cct gat gtt gac ttc agt aac ttt agc ggt ctc atg gag aca Leu Gln Pro Asp Val Asp Phe Ser Asn Phe Ser Gly Leu Met Glu Thr	569
110 115 120	
tcc aag ctg acc gag tgc ctg gct ggg gcc atc ggc agc ctg cag gag Ser Lys Leu Thr Glu Cys Leu Ala Gly Ala Ile Gly Ser Leu Gln Glu	617
125 130 135	
gag ctg aac cag gaa aag ggg cag aag gag gtg ctg ctg cgg cgg tgc Glu Leu Asn Gln Glu Lys Gly Gln Lys Glu Val Leu Leu Arg Arg Cys	665
140 145 150	
cag cag ctg cag gag cac ctg ggc ctg gcc gag acc cgt gcc gag ggc Gln Gln Leu Gln Glu His Leu Gly Leu Ala Glu Thr Arg Ala Glu Gly	713
155 160 165	
ctg cac cag ctg gag gct gac cac agc cgc atg aag cgt gag gtt agc Leu His Gln Leu Glu Ala Asp His Ser Arg Met Lys Arg Glu Val Ser	761
170 175 180 185	
gca cac ttc cat gag gtg ctg agg ctg aag gac gag atg ctc agc ctc Ala His Phe His Glu Val Leu Arg Leu Lys Asp Glu Met Leu Ser Leu	809
190 195 200	

**FIG. 1A**

tcg ctg cac tat agc aat gcg ctg cag gag aag gag ctg gcc gcc tca	857		
Ser Leu His Tyr Ser Asn Ala Leu Gln Glu Lys Glu Leu Ala Ala Ser			
205	210	215	
cgc tgc cgc agc ctg cag gag gag ctg tat cta ctg aag cag gag ctg	905		
Arg Cys Arg Ser Leu Gln Glu Glu Leu Tyr Leu Leu Lys Gln Glu Leu			
220	225	230	
cag cga gcc aac atg gtt tcc tcc tgt gag ctg gaa ttg caa gag cag	953		
Gln Arg Ala Asn Met Val Ser Ser Cys Glu Leu Glu Leu Gln Glu Gln			
235	240	245	
tcc ctg agg aca gcc agc gac cag gag tcc ggg gat gag gag ctg aac	1001		
Ser Leu Arg Thr Ala Ser Asp Gln Glu Ser Gly Asp Glu Glu Leu Asn			
250	255	260	265
cgc ctg aag gag aat gag aaa ctg cgc tcg ctg act ttc agc ctg	1049		
Arg Leu Lys Glu Glu Asn Glu Lys Leu Arg Ser Leu Thr Phe Ser Leu			
270	275	280	
gcg gag aag gac att ctg gag cag agc ctg gac gag gcg cg <sub>g</sub> ggg agc	1097		
Ala Glu Lys Asp Ile Leu Glu Gln Ser Leu Asp Glu Ala Arg Gly Ser			
285	290	295	
cga cag gag ctg gtg gag cgc atc cac tcg ctg cg <sub>g</sub> gag cg <sub>g</sub> gcc gtg	1145		
Arg Gln Glu Leu Val Glu Arg Ile His Ser Leu Arg Glu Arg Ala Val			
300	305	310	
gct gcc gag agg cag cga gag cag tac tgg gaa gag aag gaa cag acc	1193		
Ala Ala Glu Arg Gln Arg Glu Gln Tyr Trp Glu Glu Lys Glu Gln Thr			
315	320	325	
ctg ctg cag ttc cag aag agt aag atg gcc tgc caa ctc tac agg gag	1241		
Leu Leu Gln Phe Gln Lys Ser Lys Met Ala Cys Gln Leu Tyr Arg Glu			
330	335	340	345
aag gtg aat gcg ctg cag gcc cag gtg tgc gag ctg cag aag gag cga	1289		
Lys Val Asn Ala Leu Gln Ala Gln Val Cys Glu Leu Gln Lys Glu Arg			
350	355	360	
gac cag gcg tac tcc gcg agg gac agt gct cag agg gag att tcc cag	1337		
Asp Gln Ala Tyr Ser Ala Arg Asp Ser Ala Gln Arg Glu Ile Ser Gln			
365	370	375	
agc ctg gtg gag aag gac tcc ctc cgc agg cag gtg ttc gag ctg acg	1385		
Ser Leu Val Glu Lys Asp Ser Leu Arg Arg Gln Val Phe Glu Leu Thr			
380	385	390	
gac cag gtc tgc gag ctg cgc aca cag ctt cgc cag ctg cag gca gag	1433		
Asp Gln Val Cys Glu Leu Arg Thr Gln Leu Arg Gln Leu Gln Ala Glu			
395	400	405	
cct ccg ggt gtg ctc aag cag gaa gcc agg acc agg gag ccc tgt cca	1481		
Pro Pro Gly Val Leu Lys Gln Glu Ala Arg Thr Arg Glu Pro Cys Pro			
410	415	420	425

FIG. 1B

cg<sup>g</sup> gag aag cag cg<sup>g</sup> ctg gt<sup>g</sup> cg<sup>g</sup> at<sup>g</sup> cat gc<sup>c</sup> at<sup>c</sup> tc<sup>c</sup> ccc ag<sup>a</sup> gac<sup>g</sup> 1529  
 Arg Glu Lys Gln Arg Leu Val Arg Met His Ala Ile Cys Pro Arg Asp  
 430 435 440

gac agc gac tgc agc ctc gtc agc tcc aca gag tct cag ctc ttg tc<sup>g</sup> 1577  
 Asp Ser Asp Cys Ser Leu Val Ser Ser Thr Glu Ser Gln Leu Leu Ser  
 445 450 455

gac ctg agt gc<sup>c</sup> acg tcc agc cg<sup>c</sup> gag ctg gt<sup>g</sup> gac agc tt<sup>c</sup> cg<sup>c</sup> tcc 1625  
 Asp Leu Ser Ala Thr Ser Ser Arg Glu Leu Val Asp Ser Phe Arg Ser  
 460 465 470

agc agc ccc gc<sup>g</sup> ccc ccc agc cag cag tcc ctg tac aag cg<sup>g</sup> gt<sup>g</sup> gc<sup>c</sup> 1673  
 Ser Ser Pro Ala Pro Pro Ser Gln Gln Ser Leu Tyr Lys Arg Val Ala  
 475 480 485

gag gac tt<sup>c</sup> ggg gaa gaa cc<sup>c</sup> tgg tct tt<sup>c</sup> agc agc tgc ctg gag at<sup>c</sup> 1721  
 Glu Asp Phe Gly Glu Glu Pro Trp Ser Phe Ser Ser Cys Leu Glu Ile  
 490 495 500 505

cc<sup>g</sup> gag gga gac cc<sup>g</sup> gga gc<sup>c</sup> ctg cc<sup>g</sup> gga gct aag gca gg<sup>c</sup> gac cc<sup>a</sup> 1769  
 Pro Glu Gly Asp Pro Gly Ala Leu Pro Gly Ala Lys Ala Gly Asp Pro  
 510 515 520

cac ctg gat tat gag ctc cta gac ac<sup>g</sup> gca gac ctt cc<sup>g</sup> cag ctg gaa 1817  
 His Leu Asp Tyr Glu Leu Leu Asp Thr Ala Asp Leu Pro Gln Leu Glu  
 525 530 535

agc agc ctg cag cca gtc tcc cct gg<sup>a</sup> agg ctt gat gtc tc<sup>g</sup> gag agc 1865  
 Ser Ser Leu Gln Pro Val Ser Pro Gly Arg Leu Asp Val Ser Glu Ser  
 540 545 550

gg<sup>c</sup> gtc ctc atg cg<sup>g</sup> cg<sup>g</sup> agg cca gc<sup>c</sup> cg<sup>c</sup> agg at<sup>c</sup> ctg agc cag gtc 1913  
 Gly Val Leu Met Arg Arg Pro Ala Arg Arg Ile Leu Ser Gln Val  
 555 560 565

acc atg ctg gc<sup>g</sup> tt<sup>c</sup> cag ggg gat gca tt<sup>g</sup> ctg gag cag at<sup>c</sup> agc gtc 1961  
 Thr Met Leu Ala Phe Gln Gly Asp Ala Leu Leu Glu Gln Ile Ser Val  
 570 575 580 585

at<sup>c</sup> gg<sup>c</sup> ggg aac ctc ac<sup>g</sup> gg<sup>c</sup> at<sup>c</sup> tt<sup>c</sup> at<sup>c</sup> cac cc<sup>g</sup> gtc acc cc<sup>g</sup> gg<sup>c</sup> 2009  
 Ile Gly Asn Leu Thr Gly Ile Phe Ile His Arg Val Thr Pro Gly  
 590 595 600

tc<sup>g</sup> gc<sup>g</sup> gc<sup>g</sup> gac cag at<sup>g</sup> gc<sup>c</sup> tt<sup>g</sup> cg<sup>c</sup> cc<sup>g</sup> gg<sup>c</sup> acc cag att gt<sup>g</sup> at<sup>g</sup> 2057  
 Ser Ala Ala Asp Gln Met Ala Leu Arg Pro Gly Thr Gln Ile Val Met  
 605 610 615

gtt gat tac gaa gc<sup>c</sup> tca gag cc<sup>c</sup> tt<sup>g</sup> tt<sup>c</sup> aag gca gtc ctg gag gac 2105  
 Val Asp Tyr Glu Ala Ser Glu Pro Leu Phe Lys Ala Val Leu Glu Asp  
 620 625 630

ac<sup>g</sup> acc ctg gag gag gc<sup>c</sup> gt<sup>g</sup> gg<sup>c</sup> ct<sup>t</sup> ct<sup>c</sup> agg agg gt<sup>g</sup> gac gg<sup>c</sup> tt<sup>c</sup> 2153  
 Thr Thr Leu Glu Glu Ala Val Gly Leu Leu Arg Arg Val Asp Gly Phe  
 635 640 645

**FIG. 1C**

tgc tgc ctg tct gtg aag gtc aac acg gac ggt tat aag agg cta ctc Cys Cys Leu Ser Val Lys Val Asn Thr Asp Gly Tyr Lys Arg Leu Leu 650 655 660 665	2201
cag gac ctg gag gcc aaa gtg gcg acc tcg ggg gac tca ttc tac atc Gln Asp Leu Glu Ala Lys Val Ala Thr Ser Gly Asp Ser Phe Tyr Ile 670 675 680	2249
cgg gtc aac ctg gcc atg gag ggc agg gcc aaa ggg gag ctg cag gtg Arg Val Asn Leu Ala Met Glu Gly Arg Ala Lys Gly Glu Leu Gln Val 685 690 695	2297
cat tgc aac gag gtc ctg cac gtc acc gac acc atg ttc cag ggc tgc His Cys Asn Glu Val Leu His Val Thr Asp Thr Met Phe Gln Gly Cys 700 705 710	2345
ggc tgc tgg cat gcc cac cgc gtg aac tct tac acc atg aag gat act Gly Cys Trp His Ala His Arg Val Asn Ser Tyr Thr Met Lys Asp Thr 715 720 725	2393
gcc gcg cac ggc acc atc ccc aac tac tcc agg gct cag cag cag ctc Ala Ala His Gly Thr Ile Pro Asn Tyr Ser Arg Ala Gln Gln Gln Leu 730 735 740 745	2441
ata gcc ctc atc cag gac atg act cag cag tgc acc gtc acc cgc aag Ile Ala Leu Ile Gln Asp Met Thr Gln Gln Cys Thr Val Thr Arg Lys 750 755 760	2489
cca tct tct ggg gga cca cag aag ctg gtc cgc atc gtc agt atg gac Pro Ser Ser Gly Gly Pro Gln Lys Leu Val Arg Ile Val Ser Met Asp 765 770 775	2537
aaa gcc aag gcc agc cct ctg cgt ttg tcc ttt gac agg ggc cag ttg Lys Ala Lys Ala Ser Pro Leu Arg Leu Ser Phe Asp Arg Gly Gln Leu 780 785 790	2585
gac ccc agc agg atg gag ggc tcc agc acg tgc ttc tgg gcc gag agc Asp Pro Ser Arg Met Glu Gly Ser Ser Thr Cys Phe Trp Ala Glu Ser 795 800 805	2633
tgc ctc acc ctg gtg ccc tat acc ctg gtg tgg ccc cat cga ccc gcc Cys Leu Thr Leu Val Pro Tyr Thr Leu Val Trp Pro His Arg Pro Ala 810 815 820 825	2681
cgg ccc cgg cct gtg ctc ctc gtg ccc agg ggc gtt ggg aag atc ctg Arg Pro Arg Pro Val Leu Leu Val Pro Arg Ala Val Gly Lys Ile Leu 830 835 840	2729
agc gag aaa ctg tgc ctc ctc caa ggg ttt aag aag tgc ctg gca gag Ser Glu Lys Leu Cys Leu Leu Gln Gly Phe Lys Lys Cys Leu Ala Glu 845 850 855	2777
tac ttg agc cag gag gag tat gag gcc tgg agc cag aga ggg gac atc Tyr Leu Ser Gln Glu Glu Tyr Glu Ala Trp Ser Gln Arg Gly Asp Ile 860 865 870	2825

**FIG. 1D**

atc gag gga gag gtg tcc ggg ggc cgc tgc tgg gtg acc cgc cat	Ile Gln Glu Gly Glu Val Ser Gly Gly Arg Cys Trp Val Thr Arg His	2873
875 880 885		
gct gtg gag tcc ctc atg gaa aag aac acc cat gcc ctc ctg gac gtc	Ala Val Glu Ser Leu Met Glu Lys Asn Thr His Ala Leu Leu Asp Val	2921
890 895 900 905		
cag ctg gac agt gtc tgc acc ctg cac agg atg gac atc ttc ccc atc	Gln Ieu Asp Ser Val Cys Thr Leu His Arg Met Asp Ile Phe Pro Ile	2969
910 915 920		
gtc atc cac gtc tct gtc aac gag aag atg gca aag aag ctc aag aag	Val Ile His Val Ser Val Asn Glu Lys Met Ala Lys Lys Leu Lys Lys	3017
925 930 935		
ggc cta cag cgg ttg ggc acc tca gag gag cag ctc ctg gag gct gcg	Gly Leu Gln Arg Leu Gly Thr Ser Glu Glu Gln Leu Leu Glu Ala Ala	3065
940 945 950		
agg cag gag gga gac ctg gac cgg gcg ccc tgt cta tac agc agc	Arg Gln Glu Glu Gly Asp Leu Asp Arg Ala Pro Cys Leu Tyr Ser Ser	3113
955 960 965		
ctg gct cct gac ggc tgg agc gac ctg gac ggc ctg ctc agc tgt gtc	Leu Ala Pro Asp Gly Trp Ser Asp Leu Asp Gly Leu Leu Ser Cys Val	3161
970 975 980 985		
cgc cag gcc atc gcc gac gag cag aag aag gtg gtg tgg acg gag cag	Arg Gln Ala Ile Ala Asp Glu Gln Lys Lys Val Val Trp Thr Glu Gln	3209
990 995 1000		
agc ccc cga tga tgcaccgtgc cccttccgg gactgtgggg gcttctgtgt	Ser Pro Arg *	3261
gcctgttaat gcagtcctgt tcctcagccc aggccctctt ggcacagctg tgggtccctt		3321
ggcacatgag gccggctctc cccactggct ggggtctaacc ttgaacctt caccacgtgc		3381
aggtcacaca cagtgaagcc acttgtaact gcacactttt ctgtggaaac atttcaccc		3441
tttaccaggc ttggcatggt ctgaactgga aaccctgaga atgtttctgc agtaggacag		3501
gagggacatc ttcccattgcc ttcccttagaa ccggaggccc cggaacttctc tggaaaacgg		3561
cctgtctgca ggccccatc aaatctatgg gggctgcact tcccttttac atttttatgt		3621
gtcaaggct ttggagtgaa ccaaaagcac agaggcagcg ggtggggcgc ctgggtggtc		3681
cccaaggctcg ctgccaccct tgcccggggc agaggcataa gcccacatat gctgtgacgc		3741
tggccaccctt ttctcagctt ctgaggctgc gatgcctcag gaactccagt ttacagagac		3801
cagtgtgttt acttgtaaat aaagcctctg ggtgggtggag acggtacttt cagtggtct		3861
gtgccccgtg gcccctgtgc ctgttcgggtg ggggtgtccc agagaagcct ggcaccagta		3921
ccccctgtcaa		3931

FIG. 1E

M	G	E	L	C	R	R	D	S	A	L	T	A	L	D	E	E	T	L	W	20
ATG	GGG	GAA	CTG	TGC	CGC	AGG	GAC	TCC	GCA	CTC	ACG	GCA	CTG	GAC	GAG	GAG	ACA	CTG	TGG	1460
E	M	M	E	S	H	R	H	R	I	V	R	C	I	C	P	S	R	L	T	40
GAG	ATG	ATG	GAG	AGC	CAC	CGC	CAC	AGG	ATC	GTA	CGC	TGC	ATC	TGC	CCC	AGC	CGC	CTC	ACC	120
P	Y	L	R	Q	A	K	V	L	C	Q	L	D	E	E	E	V	L	H	S	60
CCC	TAC	CTG	CGC	CAG	GCC	AAG	GTG	CTG	TGC	CAG	CTG	GAC	GAG	GAG	GAG	GTG	CTG	CAC	AGC	180
P	R	L	T	N	S	A	M	R	A	G	H	L	L	D	L	L	K	T	R	80
CCC	CGG	CTC	ACC	AAC	AGC	GCC	ATG	CGG	GCC	GGG	CAC	TTG	CTG	GAT	TTG	CTG	AAG	ACT	CGA	240
G	K	N	G	A	I	A	F	L	E	S	L	K	F	H	N	P	D	V	Y	100
GGG	AAG	AAC	GGG	GCC	ATC	GCC	TTC	CTG	GAG	AGC	CTG	AAG	TTC	CAC	AAC	CCT	GAC	GTC	TAC	300
T	L	V	T	G	L	Q	P	D	V	D	F	S	N	F	S	G	E	S	S	120
ACC	CTG	GTC	ACC	GGG	CTG	CAG	CCT	GAT	GTT	GAC	TTC	AGT	AAC	TTT	AGC	GGT	GAG	AGC	TCC	360
D	F	D	G	L	A	G	T	S	R	N	L	R	L	L	V	T	P	G	L	140
GAC	TTT	GAC	GGT	TTG	GCA	GGC	ACT	TCT	AGG	AAC	CTC	AGG	CTC	CTG	GTA	ACC	CCA	GGT	CTC	420
M	E	T	S	K	L	T	E	C	L	A	G	A	I	G	S	L	Q	E	E	160
ATG	GAG	ACA	TCC	AAG	CTG	ACC	GAG	TGC	CTG	GCT	GGG	GCC	ATC	GGC	AGC	CTG	CAG	GAG	GAG	480
L	N	Q	E	K	G	Q	K	E	V	L	L	R	R	C	Q	Q	L	Q	E	180
CTG	AAC	CAG	GAA	AAG	GGG	CAG	AAG	GAG	GTG	CTG	CTG	CGG	CGG	TGC	CAG	CAG	CTG	CAG	GAG	540
H	L	G	L	A	E	T	R	A	E	G	L	H	Q	L	E	A	D	H	S	200
CAC	CTG	GGC	CTG	GCC	GAG	ACC	CGT	GCC	GAG	GGC	CTG	CAC	CAG	CTG	GAG	GCT	GAC	CAC	AGC	600
R	M	K	R	E	V	S	A	H	F	H	E	V	L	R	L	K	D	E	M	220
CGC	ATG	AAG	CGT	GAG	GTT	AGC	GCA	CAC	TTC	CAT	GAG	GTG	CTG	AGG	CTG	AAG	GAC	GAG	ATG	660
L	S	L	S	L	H	Y	S	N	A	L	Q	E	K	E	L	A	A	S	R	240
CTC	AGC	CTC	TCG	CTG	CAC	TAT	AGC	AAT	GCG	CTG	CAG	GAG	AAG	GAG	CTG	GCC	GCC	TCA	CGC	720
C	R	S	L	Q	E	E	L	Y	L	L	K	Q	E	L	Q	R	A	N	M	260
TGC	CGC	AGC	CTG	CAG	GAG	GAG	CTG	TAT	CTA	CTG	AAG	CAG	GAG	CTG	CAG	CGA	GCC	AAC	ATG	780
V	S	S	C	E	L	E	L	Q	E	Q	S	L	R	T	A	S	D	Q	E	280
GTT	TCC	TCC	TGT	GAG	CTG	GAA	TTG	CAA	GAG	CAG	TCC	CTG	AGG	ACA	GCC	AGC	GAC	CAG	GAG	840
S	G	D	E	E	L	N	R	L	K	E	E	N	E	K	L	R	S	L	T	300
TCC	GGG	GAT	GAG	GAG	CTG	AAC	CGC	CTG	AAG	GAG	GAG	AAT	GAG	AAA	CTG	CGC	TCG	CTG	ACT	900
F	S	L	A	E	K	D	I	L	E	Q	S	L	D	E	A	R	G	S	R	320
TTC	AGC	CTG	GCG	GAG	AAG	GAC	ATT	CTG	GAG	CAG	AGC	CTG	GAC	GAG	GCG	CGG	GGG	AGC	CGA	960
Q	E	L	V	E	R	I	H	S	L	R	E	R	A	V	A	A	E	R	Q	340
CAG	GAG	CTG	GTG	GAG	CGC	ATC	CAC	TCG	CTG	CGG	GAG	CGG	GCC	GTG	GCT	GCC	GAG	AGG	CAG	1020
R	E	Q	A	R	P	S	E	L	L	S	F	T	V	H	V	S	H	S	V	360
CGA	GAG	CAG	GCC	AGA	CCC	TCA	GAG	CTG	CTG	AGC	TTC	ACG	GTC	CAT	GTG	TCC	CAC	TCT	GTC	1080
Q	Y	W	E	E	K	E	Q	T	L	L	Q	F	Q	K	S	K	M	A	C	380
CAG	TAC	TGG	GAA	GAG	AAG	GAA	CAG	ACC	CTG	CTG	CAG	TTC	CAG	AAG	AGT	AAG	ATG	GCC	TGC	1140
Q	L	Y	R	E	K	V	N	A	L	Q	A	Q	V	C	E	L	Q	K	E	400
CAA	CTC	TAC	AGG	GAG	AAG	GTG	AAT	GCG	CTG	CAG	GCC	CAG	GTG	TGC	GAG	CTG	CAG	AAG	GAG	1200
R	D	Q	A	Y	S	A	R	D	S	A	Q	R	E	I	S	Q	S	L	V	420
CGA	GAC	CAG	GCG	TAC	TCC	GCG	AGG	GAC	AGT	GCT	CAG	AGG	GAG	ATT	TCC	CAG	AGC	CTG	GTG	1260
E	K	D	S	L	R	R	Q	V	F	E	L	T	D	Q	V	C	E	L	R	440
GAG	AAG	GAC	TCC	CTC	CGC	AGG	CAG	GTG	TTC	GAG	CTG	ACG	GAC	CAG	GTC	TGC	GAG	CTG	CGC	1320

FIG. 2A

DRAFT

T	Q	L	R	Q	L	Q	A	E	P	P	G	V	L	K	Q	E	A	R	T	460	
ACA	CAG	CTT	CGC	CGC	CAG	CTG	CAG	GCA	GAG	CCT	CCG	GGT	GTG	CTC	AAG	CAG	GAA	GCC	AGG	ACC	1380
R	E	P	C	P	R	E	K	Q	R	L	V	R	M	H	A	I	C	P	R	480	
AGG	GAG	CCC	TGT	CCA	CGG	GAG	AAG	CAG	CGG	CTG	GTG	CGG	ATG	CAT	GCC	ATC	TGC	CCC	AGA	1440	
D	D	S	D	C	S	L	V	S	S	T	E	S	Q	L	L	S	D	L	S	500	
GAC	GAC	AGC	GAC	TGC	AGC	CTC	GTC	AGC	TCC	ACA	GAG	TCT	CAG	CTC	TTG	TCG	GAC	CTG	AGT	1500	
A	T	S	S	R	E	L	V	D	S	F	R	S	S	S	P	A	P	P	S	520	
GCC	ACG	TCC	AGC	CGC	GAG	CTG	GTG	GAC	AGC	TTC	CGC	TCC	AGC	AGC	CCC	GCG	CCC	CCC	AGC	1560	
Q	Q	S	L	Y	K	R	V	A	E	D	F	G	E	E	P	W	S	F	S	540	
CAG	CAG	TCC	CTG	TAC	AAG	CGG	GTG	GCC	GAG	GAC	TTC	GGG	GAA	GAA	CCC	TGG	TCT	TTC	AGC	1620	
S	C	L	E	I	P	E	G	D	P	G	A	L	P	G	A	K	A	G	D	560	
AGC	TGC	CTG	GAG	ATC	CCG	GAG	GGA	GAC	CCG	GGG	GAC	CTG	CCG	GGA	GCT	AAG	GCA	GGC	GAC	1680	
P	H	L	D	Y	E	L	L	D	T	A	D	L	P	Q	L	E	S	S	L	580	
CCA	CAC	CTG	GAT	TAT	GAG	CTC	CTA	GAC	ACG	GCA	GAC	CTT	CCG	CAG	CTG	GAA	AGC	AGC	CTG	1740	
Q	P	V	S	P	G	R	L	D	V	S	E	S	A	Q	A	G	R	L	P	600	
CAG	CCA	GTC	TCC	CCT	GGA	AGG	CTT	GAT	GTC	TCG	GAG	AGT	GCA	CAA	GCC	GGT	CGT	CTC	CCG	1800	
A	C	S	G	V	L	M	R	R	R	P	A	R	R	I	L	S	Q	V	T	620	
GCC	TGC	AGC	GGC	GTC	CTC	ATG	CGG	CGG	AGG	CCA	GCC	CGC	AGG	ATC	CTG	AGC	CAG	GTC	ACC	1860	
M	L	A	F	Q	G	D	A	L	L	E	Q	I	S	V	I	G	G	N	L	640	
ATG	CTG	GCG	TTC	CAG	GGG	GAT	GCA	TTG	CTG	GAG	CAG	ATC	AGC	GTC	ATC	GGC	GGG	AAC	CTC	1920	
T	G	I	F	I	H	R	V	T	P	G	S	A	A	D	Q	M	A	L	R	660	
ACG	GGC	ATC	TTC	ATC	CAC	CGG	GTC	ACC	CCG	GGC	TCG	GCG	GCG	GAC	CAG	ATG	GCC	TTG	CGC	1980	
P	G	T	Q	I	V	M	V	D	Y	E	A	S	E	P	L	F	K	A	V	680	
CCG	GGC	ACC	CAG	ATT	GTG	ATG	GTT	GAT	TAC	GAA	GCC	TCA	GAG	CCC	TTG	TTC	AAG	GCA	GTC	2040	
L	E	D	T	T	L	E	E	A	V	G	L	L	R	R	V	D	G	F	C	700	
CTG	GAG	GAC	ACG	ACC	CTG	GAG	GAG	GCC	GTG	GGG	CTT	CTC	AGG	AGG	GTG	GAC	GGC	TTC	TGC	2100	
C	L	S	V	K	V	N	T	D	G	Y	K	R	L	L	Q	D	L	E	A	720	
TGC	CTG	TCT	GTG	AAG	GTC	AAC	ACG	GAC	GGT	TAT	AAG	AGG	CTA	CTC	CAG	GAC	CTG	GAG	GCC	2160	
K	V	A	T	S	G	D	S	F	Y	I	R	V	N	L	A	M	E	G	R	740	
AAA	GTG	GCG	ACC	TCG	GGG	GAC	TCA	TTC	TAC	ATC	CGG	GTC	AAC	CTG	GCC	ATG	GAG	GGC	AGG	2220	
A	K	G	E	L	Q	V	H	C	N	E	V	L	H	V	T	D	T	M	F	760	
GCC	AAA	GGG	GAG	CTG	CAG	GTG	CAT	TGC	AAC	GAG	GTC	CTG	CAC	GTC	ACC	GAC	ACC	ATG	TTC	2280	
Q	G	C	G	C	W	H	A	H	R	V	N	S	Y	T	M	K	D	T	A	780	
CAG	GGC	TGC	GGC	TGC	TGG	CAT	GCC	CAC	CGC	GTG	AAC	TCT	TAC	ACC	ATG	AAG	GAT	ACT	GCC	2340	
A	H	G	T	I	P	N	Y	S	R	A	Q	Q	Q	L	I	A	L	I	Q	800	
GCG	CAC	GGC	ACC	ATC	CCC	AAC	TAC	TCC	AGG	GCT	CAG	CAG	CAG	CTC	ATA	GCC	CTC	ATC	CAG	2400	
D	M	T	Q	Q	C	T	V	T	R	K	P	S	S	G	G	P	Q	K	L	820	
GAC	ATG	ACT	CAG	CAG	TGC	ACC	GTG	ACC	CGC	AAG	CCA	TCT	TCT	GGG	GGA	CCA	CAG	AAG	CTG	2460	
V	R	I	V	S	M	D	K	A	K	A	S	P	L	R	L	S	F	D	R	840	
GTC	CGC	ATC	GTC	AGT	ATG	GAC	AAA	GCC	AAG	GCC	AGC	CCT	CTG	CGT	TTG	TCC	TTT	GAC	AGG	2520	
G	Q	L	D	P	S	R	M	E	G	S	S	T	C	F	W	A	E	S	C	860	
GGC	CAG	TTG	GAC	CCC	AGC	AGG	ATG	GAG	GGC	TCC	AGC	ACG	TGC	TTC	TGG	GCC	GAG	AGC	TGC	2580	
L	T	L	V	P	Y	T	L	V	R	P	H	R	P	A	R	P	R	P	V	880	
CTC	ACC	CTG	GTG	CCC	TAT	ACC	CTG	GTG	CGG	CCC	CAT	CGA	CCC	GCC	CGG	CCC	CGG	CCT	GTG	2640	
L	L	V	P	R	A	V	G	K	I	L	S	E	K	L	C	L	L	Q	G	900	
CTC	CTC	GTG	CCC	AGG	GCG	GTT	GGG	AAG	ATC	CTG	AGC	GAG	AAA	CTG	TGC	CTC	CTC	CAA	GGG	2700	
F	K	K	C	L	A	E	Y	L	S	Q	E	E	Y	E	A	W	S	Q	R	920	
TTT	AAG	AAG	TGC	CTG	GCA	GAG	TAC	TTG	AGC	CAG	GAG	GAG	TAT	GAG	GCC	TGG	AGC	CAG	AGA	2760	

**FIG. 2B**

G	D	I	I	Q	E	G	E	V	S	G	G	R	C	W	V	T	R	H	A	940
GGG	GAC	ATC	ATC	CAG	GAG	GGG	GAG	GTG	TCC	GGG	GGC	CGC	TGC	TGG	GTG	ACC	CGC	CAT	GCT	2820
V	E	S	L	M	E	K	N	T	H	A	L	L	D	V	Q	L	D	S	V	960
GTG	GAG	TCC	CTC	ATG	GAA	AAG	AAC	ACC	CAT	GCC	CTC	CTG	GAC	GTC	CAG	CTG	GAC	AGT	GTC	2880
C	T	L	H	R	M	D	I	F	P	I	V	I	H	V	S	V	N	E	K	980
TGC	ACC	CTG	CAC	AGG	ATG	GAC	ATC	TTC	CCC	ATC	GTC	ATC	CAC	GTC	TCT	GTC	AAC	GAG	AAG	2940
M	A	K	K	L	K	K	G	L	Q	R	L	G	T	S	E	E	Q	L	L	1000
ATG	GCA	AAG	AAG	CTC	AAG	AAG	GGC	CTA	CAG	CGG	TTG	GGC	ACC	TCA	GAG	GAG	CAG	CTC	CTG	3000
E	A	A	R	Q	E	E	G	D	L	D	R	A	P	C	L	Y	S	S	L	1020
GAG	GCT	GCG	AGG	CAG	GAG	GAG	GGG	GAC	CTG	GAC	CGG	GCG	CCC	TGT	CTA	TAC	AGC	AGC	CTG	3060
A	P	D	G	W	S	D	L	D	G	L	L	S	C	V	R	Q	A	I	A	1040
GCT	CCT	GAC	GGC	TGG	AGC	GAC	CTG	GAC	GGC	CTG	CTC	AGC	TGT	GTC	CGC	CAG	GCC	ATC	GCC	3120
D	E	Q	K	K	V	Q	R	R	R	H	P	R	I	N	P	S	Q	R	T	1060
GAC	GAG	CAG	AAG	AAG	GTG	CAA	CGC	CGA	CGT	CAT	CCA	AGA	ATT	AAC	CCA	AGC	CAG	AGG	ACG	3180
G	I	A	T	Q	Q	R	Q	C	H	R	R	I	N	P	R	Q	R	M	G	1080
GGC	ATC	GCC	ACC	CAG	CAA	CGC	CAG	TGT	CAC	CGA	AGA	ATT	AAC	CCA	AGG	CAG	AGG	ATG	GCG	3240
I	A	T	Q	Q	R	Q	C	H	R	R	I	N	P	S	Q	R	T	G	I	1100
ATT	GCC	ACC	CAG	CAA	CGC	CAG	TGT	CAC	CGA	AGA	ATT	AAC	CCA	AGC	CAG	AGG	ACG	GGC	ATC	3300
T	T	Q	Q	C	Q	C	H	R	R	I	N	P	S	Q	R	T	G	I	A	1120
ACC	ACC	CAG	CAA	TGC	CAG	TGT	CAC	CGA	AGA	ATT	AAC	CCA	AGC	CAG	AGG	ACG	GGC	ATC	GCC	3360
M	P	S	S	S	D	T	L	K	K	D	K	L	L	P	R	N	T	T	1139	
ATG	CCT	TCA	TCT	TCG	GAC	ACT	CTC	AAA	AAA	GAT	AAG	CTT	CTG	CCC	AGA	AGA	AAC	ACC	ACA	3417

**FIG. 2C**

PFAM CARD DNA\_pol\_viral\_bbx brinzneu PDZpdz\_new SH3\_2 gk\_7\_Guanylate\_kin

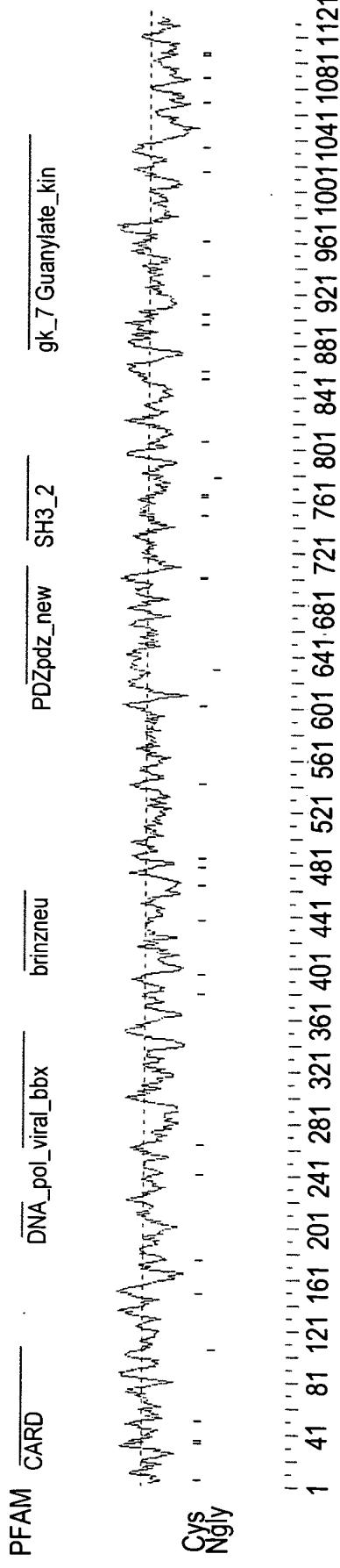
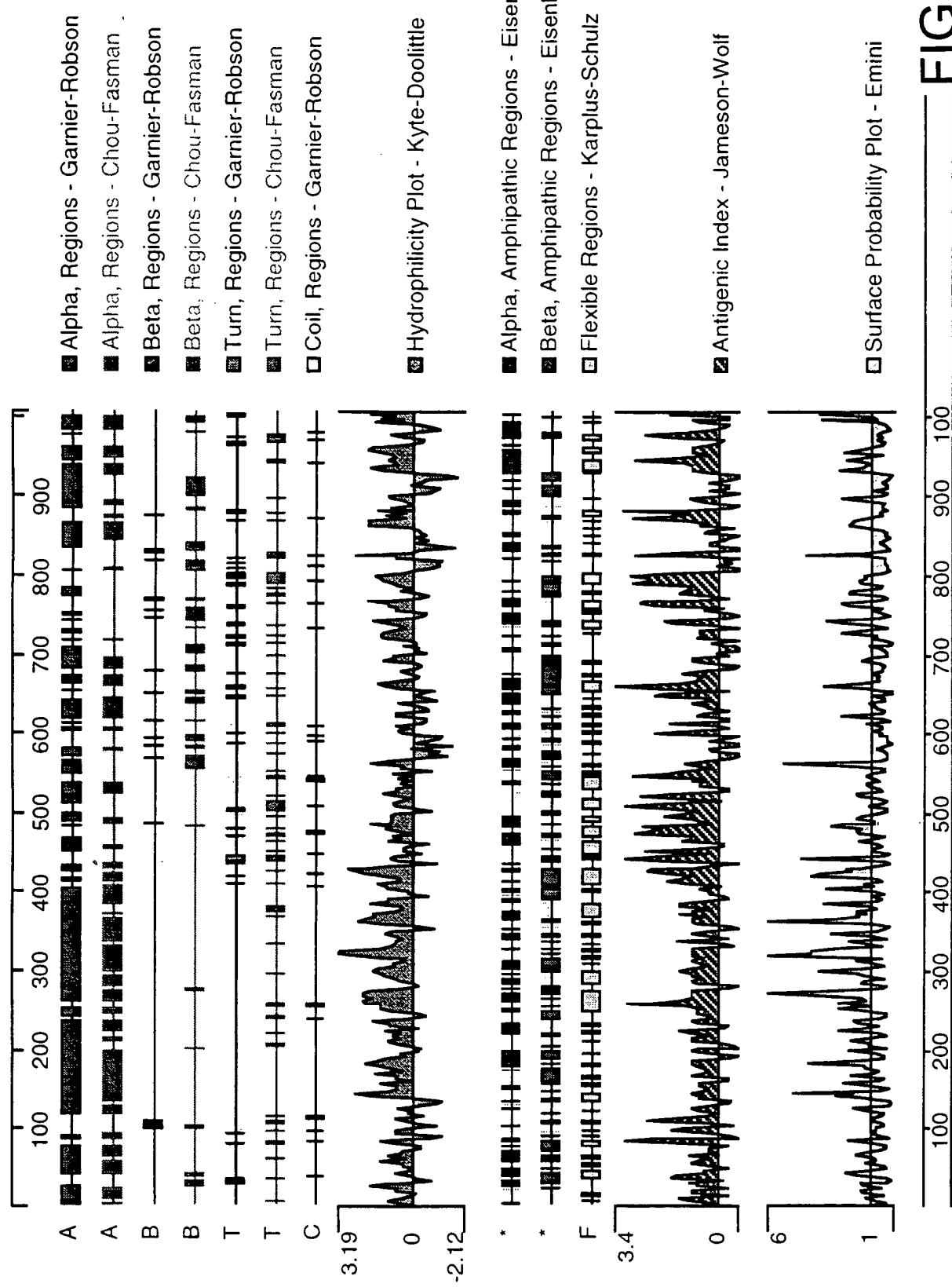


FIG. 3

**FIG. 4**

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**CARD:** domain 1 of 1, from 16 to 107: score -4.1, E = 0.94  
\*->aedrr1lrknr1ellgelt1sg1LdhLeknvlreeEEkikaknt  
+e + + +r + + + +s 1 +L++++vl + +eE++ +  
+  
**CARD14** 16 EETIWEMMESHRRHIVRCICPSRLTPYLQAKVILCOLDEEEVLHSPR 62

ttr..dkareLiDsvqkkGnqAfgf1lqaLretdqellad1lde<-\*  
+ + +a L+D +++++G + + +F1++L+ +++++ + + +  
+  
**CARD14** 63 LTNSAMRAGHLLDLKTRGKNGAIAFILESLKFHNPDVYTLVTGLQ 107

## FIG. 5A

**PDZ:** domain 1 of 1, from 568 to 659: score 5.3, E = 0.39  
\*->eitlekevkrgg1Gfsikggsdk..givvsevlpGsgaaegGrLke  
++t+ ++ 1 +i++ + + +gi++ +v PG +aA++ L++  
+  
**CARD14** 568 QVTMLAF-QGDALLEQISVIGGN1tGIFIHRTVTPG-SAADQMA-LRP 611

GDv11svNG.....qdvennmsherav1aikgsgg..evtlLtv1Rd--  
G +I+ v+ + +++ + +e+ +e+av + ++  
+  
**CARD14** 612 GTQIVMVVDYeaseplfKAVLEDTLEAVGLLRRVVDGfcCLSVKVNTD 659

## FIG. 5B

CARD14 - -

700 290 " 500 " 500 " 500 " 500 "

**SH3\_2:** domain 1 of 1, from 679 to 744: score -4.5, E = 3.8  
\*->eyyvVALYDyeaqnedELsfkGDiitvleks..ddgWweGelnr...  
+y ++ + e++ +EL ++ ++++v++ ++ g w + + ++ +  
CARD14 679 FYIRVNLAAMEGRAKGELQVHHCNEVLHVTDTMfqGGCWHAAHRVNsyt 725

...tgkeG1fPsnYeeie<-\*  
++t G +P + ++

CARD14 726 mkdTRAHGTIPNYSRAQQQ 744

FIG. 5C

**Guanylate\_kin:** domain 1 of 1, from 856 to 948: score -24.2, E = 0.073  
\*->TRPVprpgEvdgKdyhFVSSREmemekdlaaneF1EygefqqnyYGTs  
++s Ee e+ ++ + get+g +  
CARD14 856 -A-----EYLS-QEEYEAWSQRGDIIQEGEVSGGRCWVT 887

letvrqvakqgKicilDvepQggvkrllrtaaelsNPivvFIaPPS1..qeIe  
++v+ ++ + +LDv ++ v 1 + Piv+ + + 1+  
CARD14 888 RHAVESLMEKNTTHALLDVQLDSVCTLHMRMDIF-PIVIHVSVNEKmaKKLK 936

krLegrnkesEes<-\*  
k L++++ sEe+  
CARD14 937 KGLQRLGTT-SEEQ 948

FIG. 5D

F D G E S G " S P C C S & G D

K-box: domain 1 of 1, from 239 to 325: score -36.5, E = 2.9  
\*->dSYQKSSGNS..lwESNYQNWQQEAaAKLKaQIENLQnNrNqRHL1G  
S+ +++  
CARD14 239 VSSCELELQEQQSLRTASDQEESGDEELNRLKEENEKLR--SL----- 277

EdLgsLs1KELqqLEqqGLEkgLKhIRsrKnql1ldqieelqkKErelqee  
+ s1 E LEQ L++ R + + 1++ i+ 1+ + + + + + + + + +  
CARD14 278 ----TFSLAEKDILEQSLDEA----RGSRQE-LVERIHSLRERAVAERQ 318

NkaLrkKiee<-\*

+ + + ee  
CARD14 319 RE---QYWEE 325

FIG. 5E

F D G E E G G " E F E E S E S E S E

### CARD14-CARD/AD

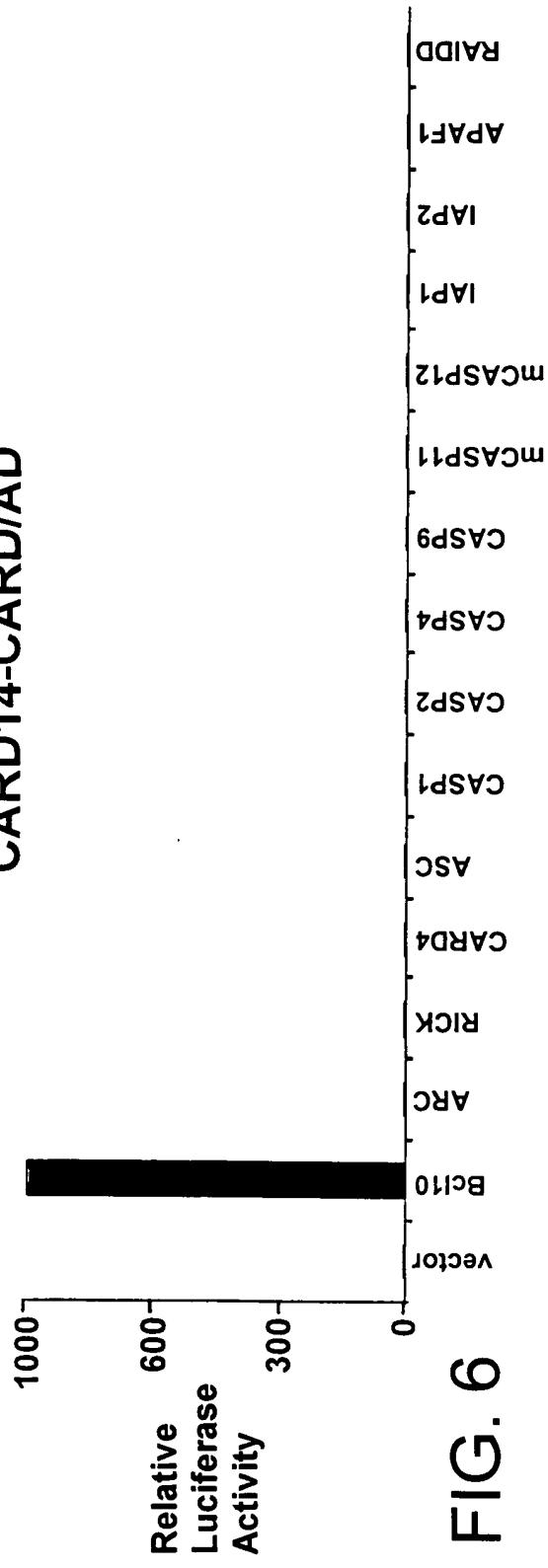
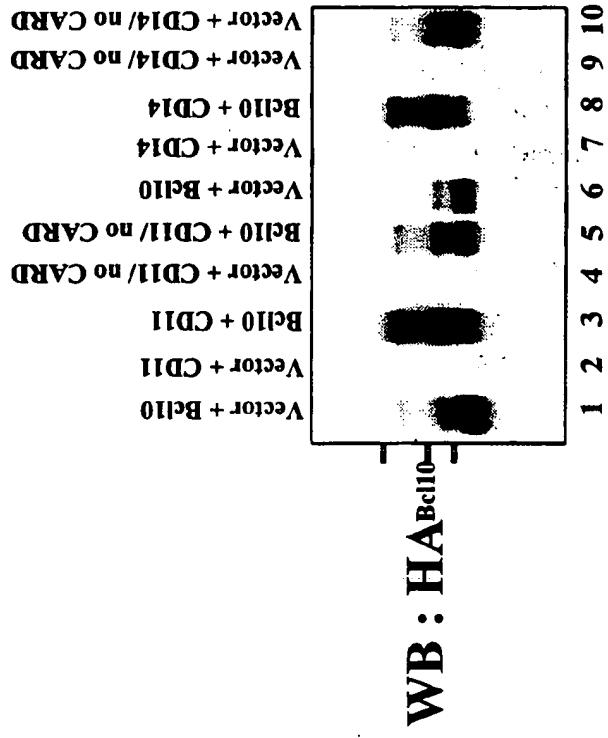
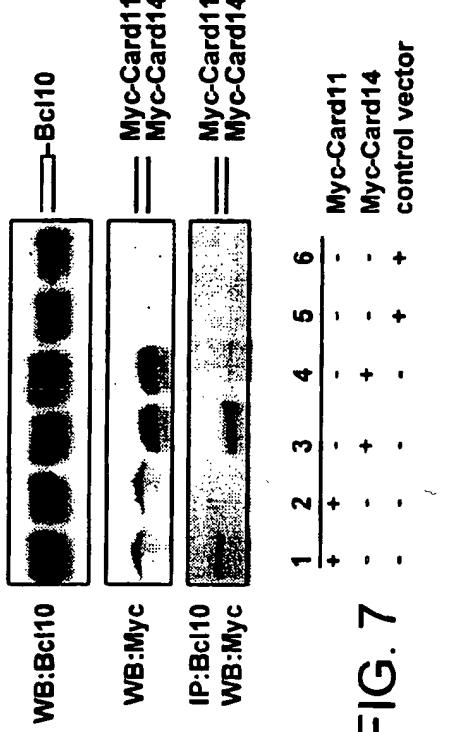
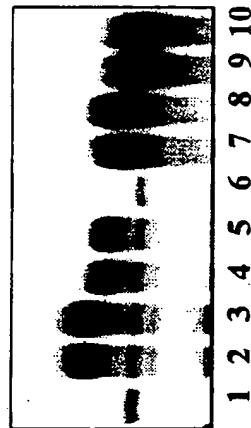


FIG. 6



**WB : HA<sub>Bcl10</sub>**

**FIG. 8**



**WB : Myc**

**FIG. 8**

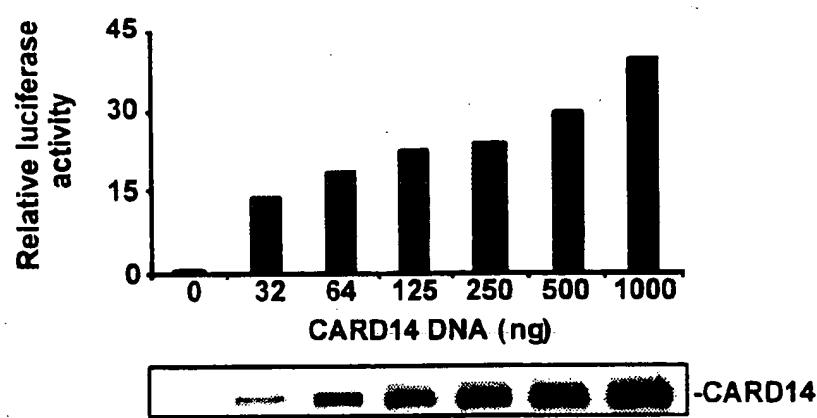


FIG. 9A

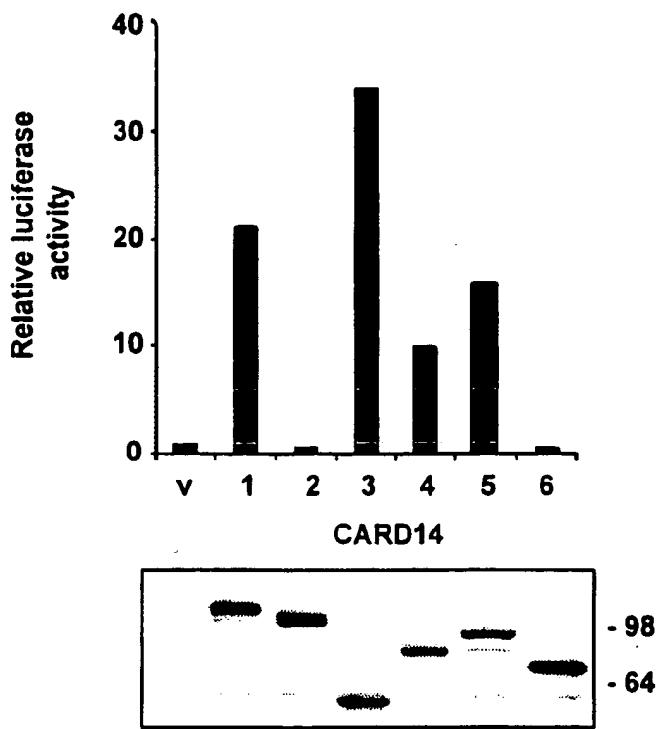


FIG. 9C

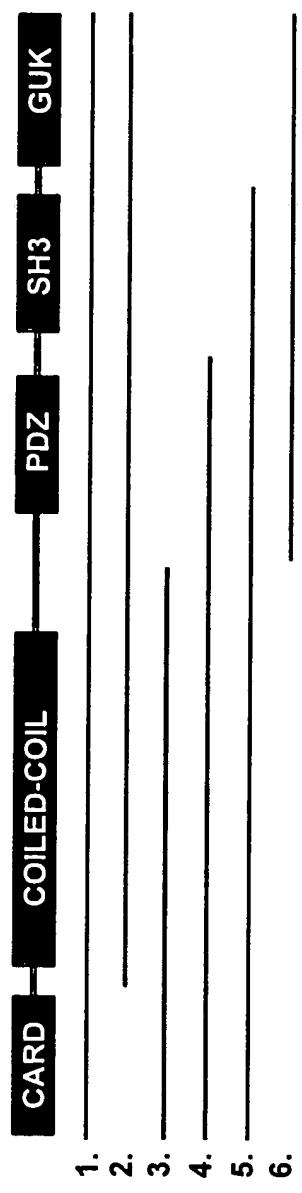


FIG. 9B